

Shedding Light on the Grademark



Your Assurance of "Egg-xact" Quality

United States Department of Agriculture
Agricultural Marketing Service • Poultry Programs

Shedding Light on the Grademark

USDA graders are like a beam of light pinpointing egg quality and good manufacturing practices by:

- Assuring the integrity and quality of eggs for processors, retailers, volume food buyers, and consumers;
- Uniformly applying grade standards every day, coast to coast, for volume food buyers and egg processors;
- Providing independent, third-party certification of egg quality;
- Assuring that egg-packing plants use only approved chemicals, compounds, insecticides, and rodenticides;
- Assuring that all officially graded eggs are identified with an authorized plant number and code date to provide an immediate traceback, if necessary.

USDA certification services provide volume food buyers with the ability to tailor their purchase specifications to meet their unique needs. This ensures that the products received do indeed meet these specifications and helps resolve controversies between buyers and sellers over compliance with the specifications. Additionally, USDA graders often can spot problems early during the processing of eggs, and work with plant management to identify the causes and find solutions.

These voluntary grading and certification services are performed by USDA's Agricultural Marketing Service. They are paid for by the egg processors and others who use them.

While all eggs are packed and identified with a letter grade and size class, they may or may not be identified with the official USDA grademarks shown here.





The USDA grademark means that:

- ▶ the egg processor's facilities and procedures are approved and continually monitored by a USDA grader to ensure that they meet USDA's requirements.
- ▶ the eggs are processed under the supervision of a technically trained USDA grader and are sampled by the grader before being shipped to the buyer.
- ▶ the eggs comply with official U.S. grade standards and weight (size) classes as verified by the USDA grader.

Egg processors who do not use the USDA grading service may identify their eggs with terms such as "Grade A," but they may not use the shield-shaped USDA grademark. Their compliance with the grade and size requirements is subject to periodic monitoring by State agencies.

Shedding Light on Plant Facilities

USDA supervisory personnel must first determine that an egg processing plant meets appropriate sanitary requirements before the plant can be approved for the USDA grading service. Requirements include:

Ceilings, walls, and floors are cleanable and of sound construction.

Grading, packing, storage, and refuse rooms are to be clean, of sufficient size, and suitably equipped.

Cooler storage areas are sanitary, properly equipped, and capable of meeting minimum temperature and humidity requirements.

Racks, pa<mark>llets, benches, pl</mark>atforms, etc., are clean. Waterresistant materials are used in areas subject to moisture.

Egg cleaning equipment functions properly and is maintained in a sanitary condition.

Lavatory facilities are adequate for the number of employees and are maintained in a sanitary condition.

Only water which is potable and of the correct iron content is used for washing eggs.

Shedding Light on Processing Operations

USDA graders are on duty whenever eggs are to be identified with the USDA grademark. They continually monitor the operations throughout the day.

Processing Machines

The high-quality eggs produced under today's large-scale, controlled flock system easily lend themselves to handling and processing by automatic equipment. USDA graders check this processing equipment for cleanliness. Critical areas, where the egg shell comes in contact with the machinery, must be clean prior to startup and remain clean so the eggs are not contaminated. Non-critical areas, where the egg shell does not come into direct contact with the machinery, are also checked and must remain relatively clean.

Egg Washing

Washing equipment washes, sanitizes, and dries eggs automatically. The temperature of the wash water and the internal temperature of the eggs to be washed are checked and documented by the USDA grader. They must be carefully monitored and controlled to adequately clean the eggs without cracking the surface of the shell during washing. The wash water temperature must be a minimum of 90 °F and must be at least 20 °F warmer than the internal egg temperature.

Sanitizer spray nozzles are checked to ensure that they are properly working, spraying sanitizer over the entire surface of the egg. The sanitizing compound must be USDA approved and the solution maintained at a level of 50 to 200 parts per million of available chlorine or its equivalent.

Egg Weighing

Automatic weighing equipment individually weighs and sorts each egg according to official weight (size) classes. USDA graders check the scales for cleanliness on a daily basis. Scale accuracy is checked at the beginning of each shift and periodically throughout processing. If the equipment malfunctions or becomes dirty, it must be repaired or cleaned before processing any eggs that will be officially graded.

Official U.S. Weight (Size) Classes

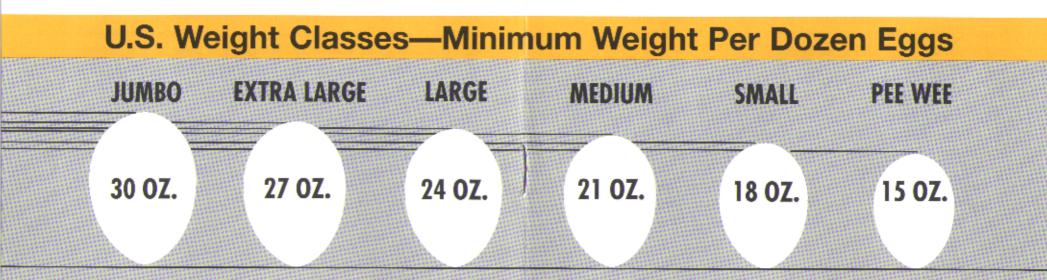
Size tells you the minimum required net weight per dozen eggs. It does not refer to the dimensions of an egg or how big it looks. Eggs of a specific weight (size) may differ in quality. Most published recipes are based on large-size eggs.

Mass Scanning

Grading equipment with mass scanners helps operators detect and remove dirties, checks, irregular shells, meat and blood spots, and other loss-type eggs. Scanning equipment rolls the eggs over high-intensity lights allowing the egg contents to be observed for defects. The USDA grader checks the scanning area for cleanliness, proper lighting, and correct operation.

Packaging

To avoid breakage and damage to the interior structure of the egg and conserve quality, careful handling is necessary. When eggs are placed into a carton or cartons are placed on conveyor belts, they should be handled carefully, not dropped. Eggs need to be packed using new and clean materials that fit the eggs snugly and provide protection. Improper packing results in poorer quality and lower grades.



Shedding Light on USDA Grading

The USDA grader selects random samples of eggs from the processing line and examines them for the following quality factors:

Condition of the shell. Cleanliness refers to freedom from stains and foreign material. Soundness of the egg shell refers to cracks, odd shapes, and other signs of weakness. Weak shells are more likely to crack during transport.

Size of the air cell. When first laid, the egg has no air cell. As an egg cools, the liquid inside contracts, air enters through the porous shell, and an air cell forms. The larger the air cell, the lower the quality.

Thickness of the white. As an egg ages, the white, due to its chemical composition, breaks down and becomes watery. When broken, eggs with thinner whites will not provide the cooking characteristics generally desired. The fresher the egg, the thicker the white and the higher the grade.

Interior defects. Although relatively little is known about the exact causes of some internal defects, most are due to improper brooding, housing, and handling practices. Grading provides for the segregation and removal of eggs with these defects.

After the sample has been examined, the USDA grader assigns a grade to the eggs based on the tolerances provided for in the standards. Standards are developed based on various quality factors that determine the relative value of the product. The standards serve as a common language that enables buyers, sellers, and consumers to communicate about egg quality, opening up new markets for processors, not only at home, but in the international arena as well.





(1) Mass scanning of eggs passing over a light. (r) USDA grader band-candles egg samples from the processing line.

U.S. Grade AA eggs have clean, unbroken shells; whites are thick and firm; and yolks are round and defect free. When broken out of the shell, the white and yolk stand high and cover a small area.

U.S. Grade A eggs have clean, unbroken shells; whites are reasonably firm; and yolks are round and defect free. When broken out of the shell, the white and yolk stand fairly high and cover a moderate area.

U.S. Grade B eggs have unbroken shells, but may show slight stains; whites may be thinner and yolks may be wider and flatter than eggs of the higher grades. This quality is seldom found in retail stores.

The Parts of an Egg

1-Shell

Outer covering of egg, composed mainly of calcium carbonate. May be white or brown depending on breed of chicken. Color does not affect quality, flavor, cooking characteristics, nutritional value, or shell thickness.

2-Shell Membranes

Two membranes – outer and inner – just inside the shell surrounding the albumen (white). Provide protective barrier against bacterial penetration.

3—Air Cell

Pocket of air usually found at large end of the egg between shell membranes. Caused by contraction of contents while egg cools after laying. Increases in size with age.

4-Outer Thin Albumen (White)

Nearest to the shell. Spreads around thick white of high-quality egg.

5-Firm or Inner Thick Albumen (White)

Excellent source of riboflavin and protein. In high-quality eggs, stands higher and spreads less than thin white. In low-quality eggs, appears like thin white.

6—Chalazae

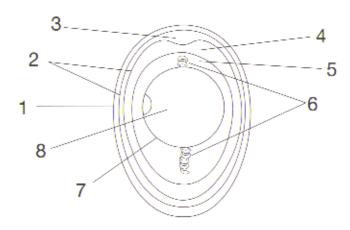
Twisted, cord-like strands of egg white. Anchor yolk in center of thick white. Prominent, thick chalazae indicates high quality and freshness.

7-Vitelline (Yolk) Membrane

Colorless membrane surrounding yolk.

8-Yolk

Yellow portion of egg. Color varies with feed of the hen; does not indicate nutritional content. Major source of vitamins, minerals, almost half of the protein, and all of the fat and cholesterol. Germinal disc is a slight depression on side of yolk that is barely noticeable.



This brochure has been developed as a supplement to a video presentation titled Shedding Light on the Grademark - Your Assurance of "Egg-xact" Quality. The video visually documents the egg grading and certification services outlined in this brochure. It is available in 7 and 15 minute VHF format. For additional information, contact:

National Shell Egg Supervisor, Grading Branch Poultry Programs, AMS, USDA, Stop 0258 1400 Independence Avenue, SW Washington, DC 20250-0258

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Shedding Light on the Grademark

Shell egg grading services for producers, retailers, volume food buyers, and consumers.

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